

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/010055

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ G03B15/00, G03B3/00, G02B7/28, G06T1/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ G03B15/00, G03B3/00, G02B7/28, G06T1/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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Kokai Jitsuyo Shinan Koho	1971-2004	Toroku Jitsuyo Shinan Koho	1994-2004

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	JP 2003-107335 A (Ricoh Co., Ltd.) 09 April, 2003 (09.04.03), Par. Nos. [0051] to [0093]; Figs. 1 to 6 & US 2003/0071908 A1 Par. Nos. [0070] to [0121]; Figs. 1 to 6	1, 12 3
Y	JP 2003-189296 A (Konica Corp.), 04 July, 2003 (04.07.03), Par. Nos. [0065], [0066]; Fig. 8 (Family: none)	3

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
18 October, 2004 (18.10.04)

Date of mailing of the international search report
02 November, 2004 (02.11.04)

Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

The inventions of claims 1, 3, 12 relate to an object decision device and a program.

The invention of claim 2 relates to an object decision device including frame acquisition means for acquiring an image of a predetermined frame as an image to be processed, from time-series images including a plurality of frames.

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1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1, 3, 12

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

Continuation of Box No.III of continuation of first sheet(2)

The inventions of claims 4, 5 relate to an object decision device in which when face detection means has detected a plurality of faces, one face is decided according to the respective image information on the faces and according to this face, an object to be focused and/or an object for which exposure control is to be performed is decided.

The invention of claim 6 relates to an object decision device calculating a scoring point based on one or more of the face direction, face size, position in the image, and density of the face in the periphery and using the calculated scoring point as image information.

The invention of claim 7 relates to an object decision device in which when a plurality of faces are detected, distance to each of the real persons is measured and according to the face of the smallest distance, a focusing object and/or an object for which exposure control is to be performed is decided.

The inventions of claims 8, 10 relate to an imaging device.

The invention of claim 9 relates to an imaging device including frame acquisition means for acquiring an image of a predetermined frame from time-series images including a plurality of frames imaged.

The invention of claim 11 relates to an imaging device including display means for displaying a face of the person decided by the decision means, while distinguishing it from the other faces.

The inventions of claims 13, 15-19, 33 relate to an object decision device and a program including decision means for deciding a face as a focal object and/or a face for which exposure control is to be performed when imaging is performed from faces of persons according to the positions of the faces of the persons if detection means has detected faces of a plurality of persons.

The invention of claim 14 relates to an object decision device including frame acquisition means for acquiring an image of a predetermined frame as an image to be processed from time-series images.

The invention of claim 20 relates to an object decision device for deciding the face located at the lowermost position as an object face among faces of a plurality of persons.

The inventions of claims 21, 22, 34, 40 relate to an object decision device and a program including decision means for deciding, when detection means has detected faces of a plurality of persons, a face of a person located in the middle of the detected number of faces as a face serving as a focal object and/or a face for which exposure control is to be performed.

The invention of claim 23 relates to an object decision device including: classification means used when detection means has detected faces of a plurality of persons, for classifying the faces into a plurality of sets according to their positions; and set decision means for deciding a selected set for deciding an object face among the sets.

The invention of claim 24 relates to an object decision device including display means for displaying the face of the person decided by the decision means, while distinguishing it from the other faces.

The inventions of claims 25, 26, 35, 41 relate to an object decision device and a program including tentative decision means and final decision means, wherein the tentative decision means decides a face as a focal object and/or a face for which exposure control is to be performed among faces of the persons contained in each of a plurality of sets when imaging is performed and the final decision means finally decides the face to be an object among the faces decided by the tentative decision means.

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The inventions of claims 27, 28, 36, 42 relate to an object decision device and a program including: detection means for detecting a personal face in each of blocks into which an input image has been divided; and block decision means for deciding a selected block for deciding the face as a focal object and/or a face for which exposure control is to be performed when imaging is performed according to the detection result of the detection means.

The inventions of claims 29, 30, 37, 43 relate to an object decision device and a program including: judgment means for judging the face of a maximum size among the personal faces when faces of a plurality of persons are detected by the detection means; and selection means for selecting the face of the maximum size and faces within a predetermined range based on the maximum face size as a reference.

The inventions of claims 31, 32, 38, 44 relate to an object decision device including: classification means for classifying personal faces detected into a plurality of sets according to their positions; and set decision means for deciding a selected set for deciding a face as a focal object and/or a face for which exposure control is to be performed when imaging is performed, from the plurality of sets.

The invention of claim 39 relates to an object decision device for deciding a face serving as a focal object and/or a face for which exposure control is to be performed when imaging is performed, from a plurality of personal faces detected, according to the positions of the personal faces.